

ABSTRACT OF THE DISCLOSURE

A high-speed routing search is realized by a hierachial routing table, while a conventional network having a hierachial network as a backbone 5 performs conventional operations without being aware of the hierachial backbone network, in a mixed environment of the hierachial and non-hierachial networks, by assigning the non-hierachial network a virtual hierarchy number equivalent to a hierarchy 10 number in the hierachial network, attaching the virtual hierachial number to a packet to be relayed at a router located at an entrance from the non-hierachial network to the hierachial network, performing hierachial routing control by the 15 virtual hierarchy number within the hierachial network, and by removing the virtual hierarchy number from the packet to be relayed at a router located at an exit from the hierachial network to the non-hierachial network.

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